

Tenebrionidæ	<i>Hoplocephala bicornis</i> Oliv.	in
	<i>Hoplocephala viridipennis</i> Fab.	in
Melandryidæ	<i>Boletotherus bifurcus</i> Fab.	on
	<i>Penthe obliquata</i> Fab.	on
	<i>Eustrophus bicolor</i> Say	on
Anthribidæ	<i>Orchesia castanea</i> Mels.	in
	<i>Euparius marmoreus</i> Oliv.	in

This table also indicates whether the species were found in, on or actually breeding in the fungus. Probably all of the *Cioidæ* mentioned develop in the fungus and it is believed that the remainder of the species mentioned except those belonging to predaceous groups such as the *Carabidæ* and *Histeridæ* are fungus eaters. In fact, in addition to the *Cioidæ* listed, such species as *Mycetophagus flexuosus*, *Phenolia grossa*, *Hoplocephala bicornis*, *H. viridipennis*, *Boletotherus bifurcus* and *Euparius marmoreus* were observed feeding on the context.

Most of the species listed were taken during the summer months but many of the *Cioidæ* can be found in the partly eaten fungus during the winter either in the larval or adult stages or both. Some of the other species can be found overwintering in the fungus or beneath the bark of fungus covered logs. Except for a species of thrips and several Hymenopterous parasites of beetles, only Coleopterous insects were found on or in *Polyporus versicolor* although other species of polypores were found to be inhabited by a few members of the *Lepidoptera*, *Diptera* and *Hemiptera* in addition to *Coleoptera*.

HEMIPTERA COLLECTED IN WESTERN NEW ENGLAND, CHIEFLY FROM MOUNTAINS.

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An opportunity of collecting in new localities was lately afforded me, when, through the kindness of Mr. C. S. Neumann of New Britain, Conn., I took part with my colleagues Professors Gorokhoff and Kennedy in an automobile trip through northwestern Massachusetts and southern Vermont. The non-entomological members of the party good naturedly consented to frequent pauses

where conditions seemed favorable for collecting, and thus I was enabled to gather the material reported on below. Among the records presented, all of which contribute to widen our knowledge of the distribution of Hemiptera in New England, a few are of especial significance.

The known range of *Rheumatobates rileyi* is extended considerably to the northward, showing that this species is by no means austral in habitat, as for a long time seemed probable. Hussey¹ has lately reported it as occurring in northern Michigan, and I have found it recently in Massachusetts² and now in southern Vermont. Another interesting case is that of *Nabis limbatus*, occurring in numbers on the summit of Mt. Greylock, where it was found also by Professor A. P. Morse in 1894. The known distribution of this species provides us with a striking instance not only of boreal habitat (in North America) but also of holarctic range. In the Old World it extends from Britain far into Siberia and southward to the warm climate of Algeria, but in North America it is met with only in the north or on mountains, in situations where its presence is clearly due not to recent introduction but to ancient migration. Still, we must emphasize the fact that the geographical distribution of but few species of Hemiptera is known in sufficient detail to warrant valid generalization, and thus a fruitful field of research is offered, especially to the careful collector. Nothing will contribute more effectually to this important branch of science than the publication of local lists, if the chief defect in past work of this character, inaccuracy of identification, is adequately guarded against.

*Mt. Greylock,*³ *Massachusetts, September 4, 1919.*

Cydnidæ.

Thyreocoris ater (Amyot et Serville).

Sehirus cinctus (Palisot de Beauvois).

Pentatomidæ.

Podisus maculiventris (Say).

Alydidæ.

Alydus pilosulus (Herrich-Schaeffer).

¹ Waterbugs of Douglas Lake Region, Occas. Papers Mus. Zööl., Univ. of Michigan, No. 75, 1919, p. 12.

² Ethological Remarks on New England Water-striders, Bull. Brooklyn Ent. Soc., Vol. 15, 1920, p. 69.

³ From the boreal summit, 3,500 feet, unless otherwise stated.

Lygaeidae.

Nysius thymi (Wolff).

Nysius ericae (Schilling).

Ischnorhynchus geminatus (Say).

Cymus angustatus Stal.

Ligyrocoris diffusus (Uhler).

Ligyrocoris contractus (Say).

A northern species found but once before in Massachusetts.

Perigenes costalis Van Duzee.

Plinthinus americanus Van Duzee.

Long-winged form ♀.—General form more broadly and evenly ovate than in the short-winged phase. Posterior lobe of pronotum somewhat elevated posteriorly, distinctly broader than anterior lobe, the lateral margins strongly sinuate posteriorly. Hemelytra but slightly broader at middle than at base; claval suture very distinct, slightly depressed together with adjacent area; corium acute at apex, the lateral margin straight in basal half, rounded apically, the membranal (apical) margin oblique, slightly convex; membrane hyaline, extending slightly beyond apex of abdomen, broadly rounded at apex, with four rather irregular veins evanescent just beyond middle of membrane. Length, 3.67 mm.; width, 1.63 mm.

Phymatidae.

Phymata erosa (Linné).

Nabidae.

Nabis subcoleopratus Kirby.

Nabis limbatus Dahlbom.

Nabis roseipennis Reuter.

Anthocoridae.

Triphleps insidiosa (Say).

Miridae.

Adelphocoris rapidus (Say).

Lygus pratensis var. *oblineatus* (Say).

Lygus vanduzeei Knight.

Lygus pabulinus (Linné).

Plagiognathus spp.

Veliidae.

Microvelia americana (Uhler).

The wingless form was present in considerable numbers on the surface of a spring halfway up the mountain. The common occurrence of several species of this genus in such isolated situations indicates the importance in the economy of the race of the fully winged phase, which, though very rare, must appear with sufficient frequency to provide for a favorable rate of dispersal.

Haystack Mountain,⁴ Vermont, September 5, 1919.

Pentatomidæ.

Euschistus tristigmus (Say).

Podisus modestus (Dallas).

Neididæ.

Neides muticus (Say). New to the Vermont list.

Lygæidæ.

Ligyrocoris contractus (Say).

Reduviidæ.

Sinea diadema (Fabricius).

Nabidæ.

Nabis roseipennis Reuter. New to the Vermont list.

Nabis rufusculus Reuter.

Miridæ.

Collaria meilleurii Provancher.

Phytocoris lasiomerus Reuter.

Phytocoris eximius Reuter. Summit. New to the Vermont list.

Lygus vanduzeei Knight. Summit.

Lygus pabulinus (Linné). Summit.

Lygus fagi Knight. Halfway.

Lygus belfragei Reuter. Halfway.

Woodford, Vermont, September 5, 1919.

Tingidæ.

Corythucha heidemanni Drake. New to the Vermont list.

Specimens taken on alder closely agreeing with an example of the species collected by Drake in the type locality. Drake has reported birch as a food plant.

⁴ From near the base unless otherwise stated.

Gerridæ.

Gerris remigis Say.

Gerris marginatus Say. New to the Vermont list.

Rheumatobates rileyi Bergroth. New to the Vermont list. On a quiet pond.

In his Douglas Lake paper (*l. c.*) Hussey gives some interesting observations on color variation in this species, which have led me to examine some hundreds of specimens in my collection, representing localities as follows: Plummers Island, Md.; Cold Spring Harbor, Long Island, N. Y.; White Plains, N. Y.; Northampton, Mass., and Woodford, Vt. I find that in the east, just as in Michigan, specimens from northern localities show a reduction in the extent of yellow pigmentation, and a few of the Vermont examples agree perfectly with Hussey's description of his Douglas Lake form. It would serve no purpose to give varietal names in this case, since almost every imaginable intergradation and permutation of spotting exists. In consulting Bergroth's review⁵ of the genus, the student must bear this variation in mind, since the color characters given for *rileyi* and *tenuipes* will not always hold. For example, in *rileyi* the median mesonotal yellow spot is frequently narrower than the pronotal spot and may in fact be absent, while the diverging brown stripes of the mesosternum, stated by Bergroth to be characteristic of *tenuipes* Meinert, may occur also in *rileyi*, though abbreviated before the posterior margin of the sternite. These species may be distinguished with certainty by means of structural criteria much as given by Bergroth, as follows:

Mesonotum about as long as broad; male with hooked hairs of middle tibiæ confined to basal half, hind legs twisted

rileyi Bergroth.

Mesonotum longer than broad; male with hooked hairs of middle tibiæ extending nearly to apex, hind legs straight

tenuipes Meinert.

Searsburg, Vermont, September 5, 1919.

Saldidæ.

Pentacora ligata (Say).

Taken on bare boulders in a rapidly flowing stream.

⁵ Fam. Gerridæ. Subfam. Halobatinae. Ohio Nat., Vol. 8, 1908, pp. 371-382.